

CLAIMS:

1. A detector module (10) for detecting discrete photons, the detector module comprising:

a scintillator array (13) having a plurality of scintillator elements each accessible from a major surface of the scintillator array and adapted to produce light upon absorbing a photon;

a photodiode array (12) having a like plurality of photodiode elements each having an active surface optically coupled to a corresponding scintillator element of the scintillator array for receiving said light and producing a respective electrical signal; and

an electronic circuit (15) that is electrically coupled to the photodiode array (12) for receiving and processing said electrical signals;

said detector module being configured so that, in use, photons strike a row of said scintillator elements abutting a first edge of the scintillator array so as to propagate through successive scintillator elements of the scintillator array until they are absorbed.

2. The detector module according to Claim 1, further including a carrier (11) for supporting the photodiode array and the electronic circuit.

3. The detector module according to Claim 2, wherein the carrier (11) is formed of ceramic material.

4. The detector module according to Claim 2 or 3, wherein:

the electronic circuit is mounted on the carrier so as to abut a second edge of the scintillator array opposite to the first edge thereof; and

a heat sink (18) is mounted on top of the electronic circuit in thermal contact therewith so that the electronic circuit is sandwiched between the carrier and the heat sink.

5. A detector assembly (20) comprising at least two stacked detector modules (10) according to any one of Claims 2 to 4.

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6. The detector assembly (20) according to Claim 5, wherein a combined thickness of the carrier and the photodiode array is small compared to a thickness of the scintillator array thereby reducing a fraction of dead space between adjacent detector modules that is insensitive to incoming photons.
- 5 7. A composite detector assembly (25) comprising two or more detector assemblies (20) according to Claim 5 or 6 juxtaposed so as to produce a larger overall area that is sensitive to photons.
8. A scanner (30, 35) for a tomograph, said scanner comprising a plurality of detector assemblies according to Claim 6 or 7 juxtaposed edge to edge.
- 10 9. The scanner (30) according to Claim 8, wherein the detector assemblies are orientated such that a normal through a plane of the scintillator array is collinear with an axis of the scanner.
10. The scanner (35) according to Claim 8, wherein the detector assemblies are orientated such that a normal through a plane of the scintillator array is orthogonal
- 15 to an axis of the scanner.